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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/717,426	11/19/2003	Normand T. LeMay	1725.77US02	1096
24113	7590	09/28/2004	EXAMINER	
PATTERSON, THUENTE, SKAAR & CHRISTENSEN, P.A. 4800 IDS CENTER 80 SOUTH 8TH STREET MINNEAPOLIS, MN 55402-2100			GANTT, ALAN T	
			ART UNIT	PAPER NUMBER
			2684	

DATE MAILED: 09/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/717,426	LEMAY, NORMAND T.	
	Examiner	Art Unit	
	Alan T. Gantt	2684	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/19/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The limitation regarding “a frequency transmitter scheme having a $3/2$ frequency output” does not relate the $3/2$ frequency output to a reference frequency, i.e., $3/2$ times the VCO frequency output. Appropriate action is required.

Regarding claim 4, the last limitation, the wording is confusing. The limitation reads: “said frequency output being developed from a VCO for both said transmitter and being non-harmonically related to a VCO frequency of said synthesizer”. The examiner suggests the following rewrite, “said frequency output being developed from a VCO for both said transmitter and said synthesizer, wherein the developed frequency output being non-harmonically related to the VCO frequency of said synthesizer”. Appropriate action is required.

Claims 13 and 20 are rejected under 35 U.S.C. 112, second paragraph, as failing to set forth the subject matter which applicant(s) regard as their invention. Evidence that claim 13 fail(s) to correspond in scope with that which applicant(s) regard as the invention can be found in the applicant's specification and Figure 2. In the specification, applicant has stated that the output frequency from the VCO is directed to the mixer as well as to frequency divider 32 of

Art Unit: 2684

Figure 2. From Figure 2 it is seen that VCO frequency output and $\frac{1}{2}$ the VCO frequency output are feed to mixer 30, the output of which is $\frac{3}{2}$ times the VCO output frequency, and this statement indicates that the invention is different from what is defined in the claim(s) because the third limitation of claim 13 states that the mixer sums the VCO output signal with a second signal, wherein the second signal comprises the VCO output signal multiplied by a factor of $\frac{3}{2}$. The specification states and Figure 2 shows that the output the resultant output frequency (meaning the output of the mixer 30) is 1.5 times the VCO frequency. The figure and specification show that the second signal comprises the VCO output signal multiplied by a factor of $\frac{1}{2}$. Thus, the mixer sums $1 + \frac{1}{2}$ to yield the resultant $\frac{3}{2}$ times the VCO output frequency. Col. 3, lines 50-52 and 55-61 state that the intended output to the antenna is 1.5 times VCO frequency for transmission.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 17 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Fienhage et al.

Art Unit: 2684

Regarding claim 17, Fienhage discloses a phase locked loop frequency source having reduced load pull susceptibility is achieved by using a voltage controlled oscillator of frequency which is neither the same or a harmonic or sub harmonic of the desired output frequency which is derived from a non-integer multiplication from the voltage controlled oscillator frequency. Thus, Fienhage discloses a frequency pulling reduction circuit architecture, comprising:

a frequency synthesizer having a voltage-controlled oscillator (VCO) frequency; (col. 2, lines 32-53 – ref. 28 is the VCO as part of phase locked loop oscillator and synthesizer of the desired output frequency) and

a frequency transmitter scheme having an output frequency, wherein said output frequency is an amplified, non-harmonic of said VCO frequency, wherein said amplification is by a factor of $3/2$. (col. 2, line 49 to col. 3, line 5 – Figure 2 is a frequency transmitter scheme as the output frequency is set by the circuit between refs. 13 to 56 and the completed with ref. 32. The output signal from VCO 28 on line [ref.] 30 is multiplied by $3/2$)

Regarding claim 18, Fienhage meets the limitation - The architecture of claim 17. wherein said transmitter scheme includes a frequency source and a frequency divider. (figure 2, refs. 13, 28, 14, and 50)

Claim Rejections - 35 USC § 103

Art Unit: 2684

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-7 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Fienhage et al.

Regarding claim 4, Fienhage discloses a phase locked loop frequency source having reduced load pull susceptibility is achieved by using a voltage controlled oscillator of frequency which is neither the same or a harmonic or sub harmonic of the desired output frequency which is derived from a non-integer multiplication from the voltage controlled oscillator frequency.

The architecture comprising:

a frequency transmitter scheme having a $3/2$ frequency output; (col. 2, line 49 to col. 3, line 5 - Fienhage scheme produces a situation of a frequency output of $3/2$ relationship between the VCO frequency and the frequency at the transmitter)

a frequency synthesizer; (col. 3, lines 6-29 and Figure 2) and

said frequency output being developed from a VCO for both said transmitter and being non-harmonically related to a VCO frequency of said synthesizer. (Figure 2 and col. 2, line 49 to col. 3, line 5 – the circuit shown in Figure 2 may be part of a circuit for powering a transmitter and the VCO is a part of this circuit and the VCO is definitely a part of the frequency synthesizing process of the phase lock loop and as previously stated

Art Unit: 2684

there exists a non-harmonic relationship between the frequency of the VCO and the circuit output frequency.)

Fienhage does utilize filters to remove spurious responses (col. 2, line 66 to col. 3, line 5) but does not specify that the frequency pulling architecture is implemented in an AM modulation process.

However, the examiner takes Official Notice that it is well known seek means to reduce frequency pulling in an AM modulation process and that it would have been obvious to modify Fienhage to utilize that architecture for an AM modulation process since it is common for AM modulation to be utilized using circuitry containing VCOs.

Regarding claim 5, Fienhage meets the limitation -The architecture according to claim 4, wherein said transmitter scheme includes a frequency source and frequency divider. (Figure 2)

Regarding claim 6, Fienhage meets the limitation -The architecture according to claim 4, wherein said frequency synthesizer is coupled to a plurality of conditioned frequencies at the input side and a low pass filter at the output side. (col. 2, line 66 to col. 3, line 5)

Regarding claim 7, Fienhage meets the limitation -The architecture according to claim 4, wherein said $3/2$ frequency output comprises conditioned frequencies from a frequency source and said VCO. (Figure 2 and col. 2, line 49 to col. 3, line 5 - Fienhage scheme produces a

Art Unit: 2684

situation of a frequency output of $3/2$ relationship between the VCO frequency and the frequency at the transmitter)

Regarding claim 19, Fienhage meets the limitation -The architecture of claim 17, wherein said frequency synthesizer is coupled to a plurality of conditioned frequencies at the input side and a low pass filter at the output side. (col. 2, line 66 to col. 3, line 5)

Allowable Subject Matter

Claims 1-3 and 8-12 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 1 and 8 schemes exist to deal with oscillator frequency pulling as shown by Estrick et al. and Fienhage. However, none of these schemes utilize a variation of a phase locked loop circuit where the output of the VCO is input both to a mixer and also to a frequency divider and where the output of that frequency divider is input into the same mixer circuit as where the output of the mixer is filtered and amplified to yield a higher non-harmonically related frequency. No such scheme, involving a VCO, frequency divider, and mixer configured in a manner as used by the applicant's invention, was found, suggested, nor made evident by the prior art.

Reissue Applications

Applicant is reminded of the continuing obligation under 37 CFR 1.178(b), to timely apprise the Office of any prior or concurrent proceeding in which Patent No. 6,321,074 is or was involved. These proceedings would include interferences, reissues, reexaminations, and litigation.

Applicant is further reminded of the continuing obligation under 37 CFR 1.56, to timely apprise the Office of any information which is material to patentability of the claims under consideration in this reissue application.

These obligations rest with each individual associated with the filing and prosecution of this application for reissue. See also MPEP §§ 1404, 1442.01 and 1442.04.

The reissue oath/declaration filed with this application is defective because it fails to contain the statement required under 37 CFR 1.175(a)(1) as to applicant's belief that the original patent is wholly or partly inoperative or invalid. See 37 CFR 1.175(a)(1) and see MPEP § 1414. The reissue oath/declaration filed with this application is defective because it fails to contain a statement that all errors which are being corrected in the reissue application up to the time of filing of the oath/declaration arose without any deceptive intention on the part of the applicant. See 37 CFR 1.175 and MPEP § 1414.

The reissue oath/declaration filed with this application is defective (see 37 CFR 1.175 and MPEP § 1414) because of the following:

The reissue oath/declaration filed with this application is defective because it fails to contain the statement required under 37 CFR 1.175(a)(1) as to applicant's belief that the original patent is wholly or partly inoperative or invalid. See 37 CFR 1.175(a)(1) and see MPEP §

Art Unit: 2684

1414. Applicant has failed to allege that the original patent is inoperative or invalid and/or (b) fails to state the reason of a defective specification or drawing, or of patentee claiming more or less than patentee had the right to claim in the patent.

Claims 1-21 are rejected as being based upon a defective reissue oath under 35 U.S.C. 251 as set forth above. See 37 CFR 1.175.

The nature of the defect(s) in the oath is set forth in the discussion above in this Office action.

The original patent, or a statement as to loss or inaccessibility of the original patent, must be received before this reissue application can be allowed. See 37 CFR 1.178.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan T. Gantt whose telephone number is (703) 305-0077. The examiner can normally be reached on 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (703) 308-7745. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2684

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Alan T. Gantt

Alan T. Gantt

September 10, 2004

Nick Corsaro

**NICK CORSARO
PRIMARY EXAMINER**